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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,063	10/29/2001	Norbert Jung	DE 000189	9393

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EXAMINER

PATEL, SHEFALI D

ART UNIT PAPER NUMBER

2621

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/040,063	Applicant(s) JUNG ET AL.	
	Examiner Shefali D. Patel	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5 December 2005 has been entered.

### *Response to Amendment*

2. The amendment was filed on 5 December 2005.
3. Claim 9 stands rejected.
4. The amendment to the Abstract has been accepted.

### *Response to Arguments*

5. Applicants' arguments filed on 5 December 2005 (Remarks on pages 11-16) have been fully considered but they are not persuasive.

Applicants argue on page 12 stating "Hoffman is not concerned with temporal resolution. Rather, Hoffman is concerned with spatial resolution." Applicant cites Hoffman's col. 3 lines 23-30 stating that "the region 102 are read at slower rate... On other hand, the background regions 102 are read at a higher rate."

The examiner respectfully disagrees.

The examiner, in an office action mailed on 22 September 2005, states (admits) on page 2 that "Hoffman does not expressly disclose temporal resolution of region in interest within the imaged area." This is one of the reasons to bring in the secondary reference by Dillen (US 5,530,935). Dillen discloses having higher temporal resolution within the region of interest at col. 7 lines 51-52. Throughout the reference, Dillen is processing temporal resolution of the image rather than spatial. There was a reason to

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combine these references given in the previous office action (and also given below in the rejection of (at least) claim 1).

The Hoffman reference does not teach away from the present invention (as stated/argued by the applicants on page 13) because, in the "Description Of The Preferred Embodiment" Hoffman discloses the scanning rate for each region simply being different (col. 5 lines 1-5).

On page 13, applicants argue stating, "Dillen is completely silent and does not teach or suggest reading out regions of interest at a higher scanning rather than other regions."

The examiner respectfully disagrees.

Dillen discloses having the region of interest read out at a higher scanning rather than the scanning rate for quantities of image point. Dillen discloses having different frequency (higher for the region of interest (ROI) and lower for the surrounding area of the ROI) of the image to discard the lower frequency and only evaluating the higher frequency portion at col. 7 lines 38-55. Please note the region of interest being contour 30 in Fig. 2, col. 6 lines 16-23.

Therefore, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Dillen with Hoffman in order to have the region of interest (i.e., part of a patient's heart, Dillen, col. 7 line 51) study at higher temporal resolution than other part of the image, col. 7 lines 45-55.

Lastly, the applicant on page 14 argue stating, "...such an accelerated read-out is not due to higher scanning rate; rather it is due to the discarding of image portions." Please note that the claims do not recite this limitation and therefore, this argument is unconvincing.

#### ***Claim Objections***

6. Claim 1 is objected to because of the following informalities: claim 1 line 15 (filed on 11/2/2005) has a misspelled word "pinots". Perhaps this ought to change to "points". Appropriate correction is required.

*Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 6, 8, 10-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman (US 6,437,338) in view of Dillen (US 5,530,935).

With regard to **claim 1** Hoffman discloses elements of at least two quantities of image points and/or groups of image points being read out at a different scanning rate is explained by in col. 4, line 61 to col. 5, line 7. Hoffman explains that selected regions, 102 in figure 3, corresponding to quantities of image points, are readout at different rates, corresponding to different scanning rates. Hoffman does not expressly disclose temporal resolution of region in interest within the imaged area. Dillen discloses having higher temporal resolution within the region of interest at col. 7 lines 38-55. Dillen discloses having different frequency (higher for the region of interest (ROI) and lower for the surrounding area of the ROI) of the image to discard the lower frequency and only evaluating the higher frequency portion at col. 7 lines 38-55. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Dillen with Hoffman. The motivation for doing so is to convert only the ROI portion into a video signal in a temporal domain rather than spatial (as it is in Hoffman). Therefore, it would have been obvious to combine Dillen with Hoffman to obtain the invention as specified in claim 1.

With regard to **claim 2**, the image points being grouped so as to form lines of a two-dimensional image and that the lines that belong to a quantity are all read out at a uniform scanning rate is illustrated by Hoffman in figure 3 and explained in column 2, lines 36-38. The rows in a selected region 102 are

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each readout at a uniform scan rate as explained by Hoffman in column 4, lines 61-63 (wherein different regions are readout at different rates, but rows within a region 102 are readout at the same rate).

With regard to **claim 3**, the lines of image points of the image being alternately assigned to at least two quantities with different scanning rates is explained by Hoffman in column 4, line 61 to column 5, line 7. In figure 3, Hoffman illustrates plural image regions, which are each readout at different rates. So the rows from each region are assigned to different scanning rates.

With regard to **claim 4**, the quantities of image points and/or groups of image points overlapping at least in a region of the image surface is illustrated by Hoffman in figure 3. The drawings of the instant application illustrate a Region of Interest (ROI) surrounded by the background in figure 1. Similarly, Hoffman explains that the ROI can be selected in an image in column 3, lines 44-47. Therefore, the regions 102 corresponding to the ROI would be readout at one scanning rate, whereas the regions 102 corresponding to the background would be readout at a second scanning rate. Furthermore, the regions 102 of Hoffman are all on the same image plane.

With regard to **claim 6**, the image sensor being sensitive to X-rays is explained by Hoffman in the abstract by the x-ray detector.

With regard to **claim 8**, the addressing unit being arranged in such a manner that it selects the addressable image points and/or groups of image points at a different scanning rate is explained by Hoffman in column 4, line 61 to column 5, line 7. Hoffman explains that scan sequencer 110 selects regions 102, corresponding to addressable image points, at different rates, corresponding to different scanning rates. Also, as explained above in claim 1 Dillen discloses scanning at different rate as well as Hoffman. Dillen also discloses sensor having higher temporal resolution as discussed above in claim 1.

**Claim 11** recites identical features as claim 2. Thus, arguments similar to that presented above for claim 2 is equally applicable to claim 11.

**Claim 12** recites identical features as claim 3. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 12.

**Claim 13** recites identical features as claim 4. Thus, arguments similar to that presented above for claim 4 is equally applicable to claim 13.

**Claim 14** recites identical features as claim 8. Thus, arguments similar to that presented above for claim 8 is equally applicable to claim 14.

**Claim 15** recites identical features as claim 11. Thus, arguments similar to that presented above for claim 11 is equally applicable to claim 15.

**Claim 16** recites identical features as claim 12. Thus, arguments similar to that presented above for claim 12 is equally applicable to claim 16.

**Claim 17** recites identical features as claim 13. Thus, arguments similar to that presented above for claim 13 is equally applicable to claim 17.

**Claim 19** recites identical features as claim 6. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 19.

9. Claims 5, 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman in view of Dillen (US 5,530,935) as applied to claims 1-4, 6, 8, 10-17 and 19 above, and further in view of Donges et al (U.S. Patent No. 4,736,401).

Referring to claim 5, the further processing of the signals from image points read out, notably their amplification, being performed in dependence on the relevant scanning rate of the image points is not explicitly explained by Hoffman. However, Donges et al explain that the amplification of an x-ray scanner (explained in the abstract) is controlled by the scanning rate in column 2, lines 3-8. Donges et al explain that this processing is done to maintain a constant output signal. The systems of Hoffman and Donges et al are both concerned with x-ray scanning devices as explained in the abstracts of both

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references. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to process the signals from image points read out, notably their amplification, dependent on the relevant scanning rate of the image points, as suggested by Donges et al, in the system of Hoffman because the images output by the detector would be more consistent.

Referring to claim 10, the reading unit being arranged in such a manner that it bases the processing, notably the signal amplification, on the scanning rate at which the relevant image points and/or groups of image points are addressed corresponds to claim 5.

With regards to claim 18 It would have been obvious matter of design choice to modify the Hoffman (in view of Dillen) reference by having different groups of image points since applicant has not discloses that having different groups of image points solves any stated problem or is for any particular purpose and it appears that the Hoffman and Dillen would perform equally well with Donges et al. as Donges et al. discloses the amplification of an x-ray scanner (explained in the abstract) controlled by the scanning rate in column 2, lines 3-8.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman in view of Dillen (US 5,530,935) as applied to claims 1-4, 6, 8, 10-17 and 19 above, and further in view of Lyons et al (U.S. Patent No. 6,713,773 B1).

Referring to claim 7, the image points and/or the groups of image points that are read out at a lower scanning rate being irradiated with a lower intensity is not explicitly explained by Hoffman. However, Lyons et al explains that the irradiation dosage, corresponding to the irradiation intensity, is a product of the rate at which the beam is being scanned in column 2, lines 25-28. Lyons et al explain that such a system is capable of delivering a precise item-specific dose of irradiation in column 1, lines 15-18. The system of Lyons et al is also concerned with detecting x-ray emissions as explained in the abstract. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was



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made to irradiate image points that are read out at a lower scanning with a lower intensity, as suggested by Lyons et al, in the system of Hoffman because the dosage of radiation would be more precise.

*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel  
Examiner  
Art Unit 2621

14 February 2006

JINGGE WU  
PRIMARY EXAMINER

